



Robins Air Force Base Environmental Advisory Board (EAB) *Fact Sheet*



Volume 14, Issue 3, February 2020

The Robins AFB EAB

Recognizing the importance of public involvement in environmental matters, Robins Air Force Base (Robins AFB or Base) has established the Environmental Advisory Board (EAB). The mission of the EAB is to encourage participation of surrounding communities in the Base’s environmental programs and allow community members and other stakeholders to have meaningful dialog with Base officials. Specifically, the EAB serves to promote community awareness and obtain constructive community review, comment, and input on current and proposed actions associated with environmental programs at Robins AFB. The EAB supports the Air Force environmental mission of sustaining readiness, being a good neighbor, protecting human health and the environment for the Base and community, and making smart business decisions.

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February 2020 EAB Meeting

The winter EAB meeting was held on Thursday, February 13, 2020. The topics briefed included “Update on Progress at Select Restoration Sites”. The meeting was delayed by a week due to strong storms forecasted for the week before.

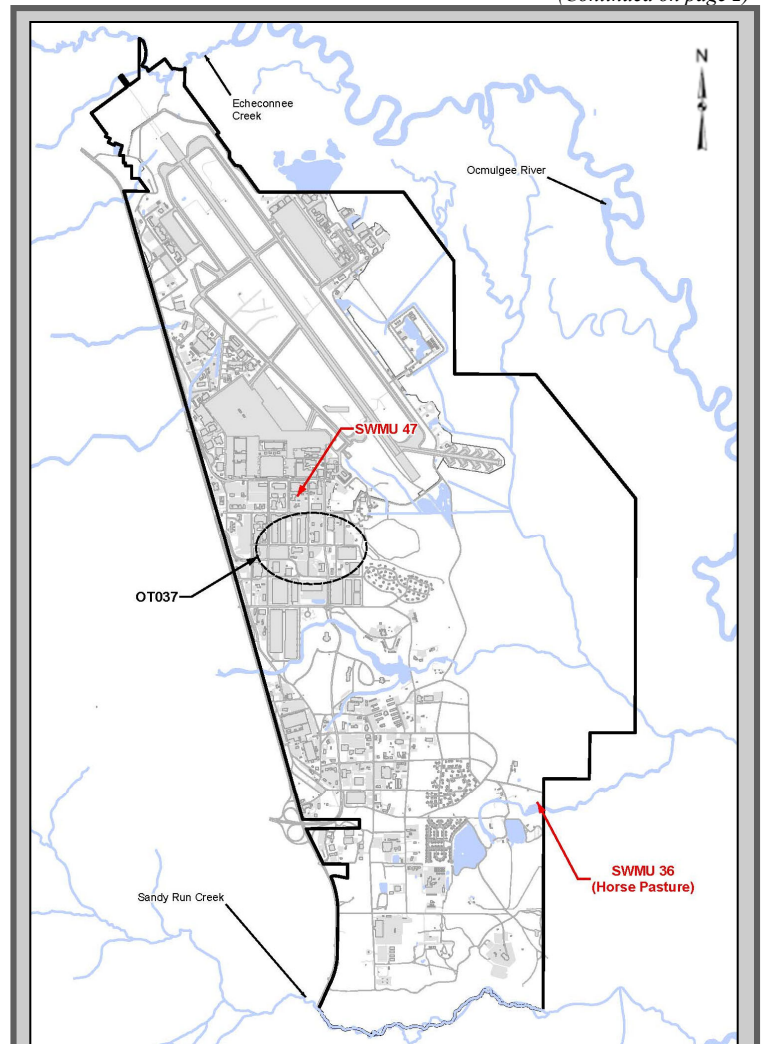
This *Fact Sheet* provides a summary of the information and topics discussed during the meeting.

The next meeting will be held on Thursday, August 6, 2020 (the May EAB meeting was cancelled due to the COVID-19 Pandemic).

UPDATES ON PROGRESS AT SELECT RESTORATION SITES

At the recent EAB meeting, **Mr. Mike Perlmutter** and **Mr. Adam Forsberg** of Jacobs Engineering Group briefed on the status of the cleanup efforts at select restoration sites covered under the Performance-Based Remediation (PBR) contract. Specifically, the sites discussed during the meeting included: (i) SWMU 62 (OT037); (ii) SWMU 47 (CG 504); and (iii) SWMU 36 (DC034). The status of each site is presented in this Fact Sheet.

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Jacobs provided updates on the cleanup efforts at three restoration sites during the recent EAB meeting.

UPDATES ON PROGRESS AT SELECT RESTORATION SITES (CONT'D...)

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SWMU 62

SWMU 62 is primarily a chlorinated ethene [largely tetrachloroethene (PCE) and trichloroethene (TCE)] and carbon tetrachloride (CT) groundwater plume that was originally identified in 1999. The source of the plume is generally thought to be associated with a 48-inch storm sewer outfall (i.e., the Third Street outfall). The original remedy for the site included a groundwater extraction system. The contract objective for SWMU 62 under the PBR contract was originally Response Complete (RC) [i.e., attain remediation levels (RLs) in each of five site monitoring wells].

As part of the optimized remedy for the site under the PBR contract, the groundwater extraction system was shut down, and an in-situ chemical oxidation (ISCO) remedy using potassium permanganate (KMnO_4) was implemented. An initial injection occurred in May 2013, with observed decreases in groundwater contaminant concentrations immediately following the injection event. Over time, rebound in groundwater contaminant concentrations was observed.

In 2015, the performance metrics for the site were revised to: (i) reduce the sum of CT, PCE, and TCE concentrations at each of 17 performance monitoring wells by 50 percent as compared to April 2015 concentrations; (ii) reduce the sum of CT, PCE, and TCE concentrations at each of 17 performance monitoring wells by 75 percent as compared to April 2015 concentrations; and (iii)

achieve CT, PCE, and TCE RLs at each of 17 performance monitoring wells by 2020.

Additional injection events were conducted in October 2016 and February 2017 targeting recalcitrant areas. Since 2013, the average PCE, TCE, and CT concentrations in groundwater have been reduced by 70, 85, and 70 percent respectively. The path forward for SWMU 62 includes semi-annual groundwater sampling and continuing to evaluate permanganate persistence. It is likely that the objective for this site will not be met under the PBR. The follow-on contractor will be expected to optimize the remedy to move the site toward closure.

SWMU 47

SWMU 47 is defined as the contaminated soil and groundwater near Building 177 (i.e., the steam plant) that resulted from a leaking underground fuel line connected to a 250,000-gallon above-ground storage tank (AST) containing No. 2 diesel fuel. Soil contamination at SWMU 47 was identified in 1996, and a Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) was completed in 1997.

The original remedy for the site included removing light non-aqueous phase liquid (LNAPL) with dual-phase extraction along with biosparging. Under the PBR, the remedy has included continued LNAPL recovery, along with surfactant flushing using a biodegradable surfactant to promote mobilization, solubilization, and recovery of LNAPL. Excavation of a small area (approximately 45 cubic yards) of arsenic-impacted soil was also included, as well as sampling of soil for hexavalent chromium. The contract performance metric for SWMU 47 is Optimized Exit Strategy (OES).

Beginning in 2017, a Supplemental Site Investigation (SSI) was conducted to: (i) fully delineate the LNAPL at SWMU 47; and (ii) to assess whether LNAPL is migrating from underneath Building 177. The SSI included soil screening for LNAPL and installation of additional monitoring wells to monitor for LNAPL. Samples of the LNAPL were also collected for fuel typing. Based on these results, the LNAPL was related to diesel fuel, and it



ISCO injections at SWMU 62.

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UPDATES ON PROGRESS AT SELECT RESTORATION SITES (CONT'D...)

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was not weathered. To understand if the LNAPL was associated with a leak from the AST, further testing was conducted on samples of both materials. These results indicted that the sulfur content for the LNAPL was consistent with high sulfur diesel fuel, while the sulfur content of the sample from the AST was consistent with ultra-low sulfur diesel fuel. Therefore, it was concluded that the LNAPL is not resulting from a leak in the AST.

Based on the results of the SSI, the OES approach for the site is to conduct quarterly high vacuum extraction (HVE) events and LNAPL monitoring and removal, as needed.

Following the SSI, an Engineering Evaluation was conducted to develop, screen, and evaluate remedial alternatives to accelerate removal of LNAPL and reduce concentrations of dissolved phase hydrocarbons to below RLs. A variety of technologies were reviewed to develop three alternatives believed to be most applicable to SWMU 47, including: (i) groundwater extraction with surfactant flushing and multi-phase extraction (MPE); (ii) air sparge/soil vapor extraction (AS/SVE); and (iii) HVE and enhance aerobic bioremediation. As part of the Engineering Evaluation, a conceptual design for each technology was developed to be able to assess factors such as logistical concerns, time to remediate, cost, effectiveness, and risk. This evaluation can be used by the Air Force to assess the path forward for this site under the follow-on contract to the PBR contract.

The path forward for this site is to continue the quarterly HVE events and to conduct monitoring LNAPL gauging and long-term groundwater monitoring.

SWMU 36

SWMU 36 was used as a disposal area from the mid-1950s to the mid-1970s. Initial remediation activities consisted of excavating the contaminated soil and implementing ISCO for the contaminated groundwater. Under the PBR contract the remedy was shifted to: (i) Enhanced Reductive Dechlorination; (ii) aerobic bioremediation using in-situ submerged oxygen curtains; and (iii) an AS/SVE cut-off barrier to prevent the groundwater plume from migrating off-site. The corrective action objectives for SWMU 36 include reducing contaminant of concern (COC) concentrations in groundwater to below RLs and limiting further off-site migration of groundwater COCs.

Under the PBR, Jacobs was tasked with developing a three-dimensional (3-D) conceptual site model (CSM) for SWMU 36. Based on a definition by the Interstate Technology & Regulatory Council, a CSM describes the processes that control transport of contaminants through physical media to environmental receptors. A 3-D CSM can be used for decision making, data interpretation, communication, and to identify data gaps related to cleanup of a site. A CSM is meant to be a living, iterative, and dynamic tool.

The 3-D CSM for SWMU 36 was developed in Earth Volumetric Studio (EVS) using historical lithologic and analytical data from both DC034 and Landfill No. 3. Historical data were obtained from numerous sources including the Robins AFB Environmental Program Information Management System, historical reports, and open-source spatial data, such as topography and aerial imagery. The 3-D version of the model was presented during the EAB.



Example of a HVE Event

ELECTRONIC ADMINISTRATIVE RECORD AVAILABLE TO PUBLIC

During the winter EAB, Ms. **Laurel Cordell** with the Air Force Civil Engineering Center – Robins Installation Support Section presented a briefing to remind the EAB members about the availability of the online electronic version of the Air Force’s Administrative Record.

The Administrative Record is a requirement of the Comprehensive Environmental Response, Compensation, and Liability Act. Documents related to environmental cleanups must be readily accessible to the public.

The Administrative Record for Robins AFB has historically been housed on compact discs at the Nola Brantley Memorial Library in Warner Robins, Georgia. The Administrative Record was transitioned by the Air Force to an online repository to facilitate ac-

cess to the documents from any location. Documents for all Air Force Bases are available on the online repository.

The Administrative Record has now been online for several years. Types of documents include reports from contractors, letters from the GA EPD, and letters from Robins AFB.

Searches for documents can be conducted by document title, site names, keywords, authors, recipients, etc. A handout was provided to the EAB members with access instructions. The home page for the Administrative Record website is located at the link below.

<http://afcec.publicadmin-record.us.af.mil/>

Acronyms

3-D	Three-Dimensional
AFB	Air Force Base
AS/SVE	Air Sparge/Soil Vapor Extraction
AST	Aboveground Storage Tank
COC	Contaminant of Concern
CSM	Conceptual Site Model
CT	Carbon Tetrachloride
EAB	Environmental Advisory Board
EVS	Earth Volumetric Studio
HVE	High Volume Extraction
ISCO	In-situ Chemical Oxidation
KMnO ₄	Potassium Permanganate
LNAPL	Light Non-aqueous Phase Liquid
MPE	Multi-Phase Extraction
No.	Number
OES	Optimized Exit Strategy
OT	Other Site
PBR	Performance-Based Remediation
PCE	Tetrachloroethene
RC	Response Complete
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
SSI	Supplemental Site Investigation
SWMU	Solid Waste Management Unit
TCE	Trichloroethene

For more information regarding the EAB, please contact **Ms. Laurel Cordell, Robins AFB EAB Manager**, at (478) 327-9275 or visit <http://www.robinseab.org>

Environmental Advisory Board Members

Vacant, Robins AFB Installation Co-Chair	Mr. James Harden, Warner Robins Community Member	Dr. Clarence Riley, Warner Robins Community Member
Dr. Linda Smyth, Macon Community Co-Chair	Mayor John Harley, Centerville Community Member	Dr. Brian E. Rood, Macon Community Member
Ms. Anna Cornelious, US EPA Region 4 Superfund Division	Mr. Stephen Johnson, Macon Community Member	Mr. Penrose Wolf, Perry Community Member
Mr. Jim Ashworth GA EPD Hazardous Waste Management	Ms. Debra Jones, Warner Robins Community Member	
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